

ABSTRACT

Provided are synthetic peptides comprising amino acid sequence from the HR1 region of HIV-1 gp41, and having one or more amino acid substitutions in a hydrophobic domain of the HR1 region of HIV-1 gp41. As a result of the one or more amino acid substitutions in the hydrophobic domain, synthetic peptide self-assembles into trimers in solution.

Also provided are trimers resulting from self-association of synthetic peptide.

Additionally provided are methods of using these compositions to inhibit transmission of HIV to a target cell, or to inhibit HIV fusion to a target cell, wherein the methods involve adding an effective amount of synthetic peptide (or trimer formed therefrom) to inhibit viral transmission or viral fusion, respectively.